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Compendium of Animal Rabies Prevention and Control, 2007

National Association of State Public Health Veterinarians, Inc.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Compendium of Animal Rabies Prevention and Control, 2007*

National Association of State Public Health Veterinarians, Inc. (NASPHV)

Rabies is a fatal viral zoonosis and a serious public health problem (*1*). The disease is an acute progressive encephalitis caused by a lyssavirus. Multiple viral variants are maintained in wild mammal populations in the United States, but all mammals are believed to be susceptible to the disease. For purposes of this document, use of the term "animal" refers to mammals.

The recommendations in this compendium serve as a basis for animal rabies-prevention and -control programs throughout the United States and facilitate standardization of procedures among jurisdictions, thereby contributing to an effective national rabies-control program. This document is reviewed annually and revised as necessary. These recommendations do not supersede state and local laws or requirements. Principles of rabies prevention and control are detailed in Part I; recommendations for parenteral vaccination procedures are presented in Part II, and all animal rabies vaccines licensed by the U.S. Department of Agriculture (USDA) and marketed in the United States are listed in Part III.

Part I: Rabies Prevention and Control

A. Principles of Rabies Prevention and Control.

1. **Rabies Exposure.** Rabies is transmitted only when the virus is introduced into bite wounds, open cuts in skin, or onto mucous membranes from saliva or other potentially infectious material such as neural tissue (*2*). Questions regarding possible exposures should be directed promptly to state or local public health authorities.
2. **Public Health Education.** Essential components of rabies prevention and control include ongoing public health education, responsible pet ownership, routine veterinary care, and professional continuing education. The majority of animal and human exposures to rabies can be prevented by raising awareness concerning rabies transmission routes; avoiding contact with wildlife; and following appropriate veterinary care. Prompt recognition and reporting of possible exposures to medical professionals and local public health authorities are critical.
3. **Human Rabies Prevention.** Rabies in humans can be prevented either by eliminating exposures to rabid animals or by providing exposed persons with prompt local treatment of wounds combined with the administration of human rabies immune globulin and vaccine. The rationale for recommending preexposure and postexposure rabies prophylaxis and details of their administration can be found in the current recommendations of the Advisory Committee on Immunization Practices (ACIP) (*2*). These recommendations, along with information concerning the current local and regional epidemiology of animal rabies and the availability of human rabies biologics, are available from state health departments.
4. **Domestic Animals.** Local governments should initiate and maintain effective programs to ensure vaccination of all dogs, cats, and ferrets and to remove strays and unwanted animals. Such procedures in the United States have reduced laboratory-confirmed cases of rabies in dogs from 6,949 in 1947 to 76 in 2005 (*3*). Because more rabies cases are reported annually involving cats (269 in 2005) than dogs, vaccination of cats should be required (*3*). Animal shelters and animal-control authorities should establish policies to ensure that adopted animals are vaccinated against rabies. The recommended vaccination procedures and the licensed animal vaccines are specified in Parts II and III of this compendium, respectively.
5. **Rabies in Vaccinated Animals.** Rabies is rare in vaccinated animals (*4*). If such an event is suspected, it should be reported to state public health officials; the vaccine manufacturer; and USDA, Animal and Plant Health Inspection Service, Center for Veterinary Biologics (Internet: http://www.aphis.usda.gov/vs/cvb/html/adverseeventreport.html; telephone: 800-752-6255; or e-mail: CVB@usda.gov). The laboratory diagnosis

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should be confirmed, and the virus should be characterized by a rabies reference laboratory. A thorough epidemiologic investigation should be conducted.

6. **Rabies in Wildlife.** The control of rabies among wildlife reservoirs is difficult (*5*). Vaccination of free-ranging wildlife or selective population reduction might be useful in certain situations, but the success of such procedures depends on the circumstances surrounding each rabies outbreak (see Part I.C.). Because of the risk of rabies in wild animals (especially raccoons, skunks, coyotes, foxes, and bats), AVMA, CSTE, NACA, and NASPHV strongly recommend the enactment and enforcement of state laws prohibiting their importation, distribution, and translocation.
7. **Rabies Surveillance.** Laboratory-based rabies surveillance and variant typing are essential components of rabies-prevention and -control programs. Accurate and timely information is necessary to guide human postexposure prophylaxis decisions, determine the management of potentially exposed animals, aid in emerging pathogen discovery, describe the epidemiology of the disease, and assess the need for and effectiveness of vaccination programs for wildlife.
8. **Rabies Diagnosis.** Rabies testing should be performed in accordance with the established national standardized protocol for rabies testing (http://www.cdc.gov/ncidod/dvrd/rabies/Professional/publications/DFA_diagnosis/ DFA_protocol-b.htm) by a qualified laboratory that has been designated by the local or state health department (*6,7*). Euthanasia should be accomplished in such a way as to maintain the integrity of the brain so that the laboratory can recognize the anatomical parts (*8*). Except in the case of very small animals, such as bats, only the head or brain (including brain stem) should be submitted to the laboratory. To facilitate laboratory processing and prevent a delay in testing, any animal or animal specimen being submitted for testing should preferably be stored and shipped under refrigeration and not be frozen. Chemical fixation of tissues should be avoided to prevent substantial testing delays and because it might preclude reliable testing. Questions regarding testing of fixed tissues should be directed to the local rabies laboratory or public health department.
9. **Rabies Serology.** Certain "rabies-free" jurisdictions might require evidence of vaccination and rabies virus antibodies for animal importation purposes. Rabies virus antibody titers are indicative of a response to vaccine or infection. Titers do not directly correlate with protection because other immunologic factors also play a role in preventing rabies, and the ability to measure and interpret those other factors are not well developed. Therefore, evidence of circulating rabies virus antibodies should not be used as a substitute for current vaccination in managing rabies exposures or determining the need for booster vaccinations in animals (*9–11*).

B. Prevention and Control Methods in Domestic and Confined Animals.

1. **Preexposure Vaccination and Management.** Parenteral animal rabies vaccines should be administered only by or under the direct supervision of a veterinarian. Rabies vaccinations also may be administered under the supervision of a veterinarian to animals held in animal-control shelters before release. Any veterinarian signing a rabies certificate must ensure that the person administering vaccine is identified on the certificate and is appropriately trained in vaccine storage, handling, administration, and in the management of adverse events. This practice ensures that a qualified and responsible person can be held accountable for properly vaccinating the animal.

   Within 28 days after initial vaccination, a peak rabies virus antibody titer is reached, and the animal can be considered immunized. An animal is considered currently vaccinated and immunized if the initial vaccination was administered at least 28 days previously or booster vaccinations have been administered in accordance with this compendium.

   Regardless of the age of the animal at initial vaccination, a booster vaccination should be administered 1 year later (see Parts II and III for vaccines and procedures). No laboratory or epidemiologic data exist to support the annual or biennial administration of 3- or 4-year vaccines following the initial series. Because a rapid anamnestic response is expected, an animal is considered currently vaccinated immediately after a booster vaccination.

   a. **Dogs, Cats, and Ferrets.** All dogs, cats, and ferrets should be vaccinated and revaccinated against rabies in accordance with Part III of this compendium. If a previously vaccinated animal is overdue for a booster, it should be revaccinated. Immediately following the booster, the animal is considered currently vaccinated and should be placed on a vaccination schedule according to the labeled duration of the vaccine used.
   b. **Livestock.** Consideration should be given to vaccinating livestock that are particularly valuable. Animals that have frequent contact with humans (e.g.,

in petting zoos, fairs, and other public exhibitions) and horses traveling interstate should be currently vaccinated against rabies (*12,13*).

c. Confined Animals.

1.) Wild. No parenteral rabies vaccines are licensed for use in wild animals or hybrids (i.e., the offspring of wild animals crossbred to domestic animals). The AVMA has recommended that wild animals or hybrids should not be kept as pets (*14–17*).

2.) Maintained in Exhibits and in Zoological Parks. Captive mammals that are not completely excluded from all contact with rabies vectors can become infected. Moreover, wild animals might be incubating rabies when initially captured; therefore, wild-caught animals susceptible to rabies should be quarantined for a minimum of 6 months. Employees who work with animals at exhibits and in zoological parks should receive preexposure rabies vaccination. The use of pre- or postexposure rabies vaccinations for handlers who work with animals at such facilities might reduce the need for euthanasia of captive animals that expose handlers. Carnivores and bats should be housed in a manner that precludes direct contact with the public (*12*).

2. Stray Animals. Stray dogs, cats, and ferrets should be removed from the community. Local health departments and animal-control officials can enforce the removal of strays more effectively if owned animals have identification and are confined or kept on leash. Strays should be impounded for at least 3 business days to determine if human exposure to rabies has occurred and to give owners sufficient time to reclaim animals.

3. Importation and Interstate Movement of Animals.

a. International. CDC regulates the importation of dogs and cats into the United States. Importers of dogs must comply with rabies vaccination requirements (42 CFR, Part 71.51[c] [http://www.cdc.gov/ncidod/dq/animal.htm]) and complete CDC form 75.37 (http://www.cdc.gov/ncidod/dq/pdf/animal/dog_quarantine_notice_08-04-06-cdc7537.pdf). The appropriate health official of the state of destination should be notified within 72 hours of the arrival into the jurisdiction of any imported dog required to be placed in confinement under the CDC regulation. Failure to comply with these confinement requirements should be promptly reported to the Division of Global Migration and Quarantine, CDC (telephone: 404-639-3441).

Federal regulations alone are insufficient to prevent the introduction of rabid animals into the United States (*18,19*). All imported dogs and cats are subject to state and local laws governing rabies and should be currently vaccinated against rabies in accordance with this compendium. Failure to comply with state or local requirements should be referred to the appropriate state or local official.

b. Interstate. Before interstate movement (including commonwealths and territories), dogs, cats, ferrets, and horses should be currently vaccinated against rabies in accordance with this compendium's recommendations (see Part I.B.1.). Animals in transit should be accompanied by a valid NASPHV Form 51, Rabies Vaccination Certificate (http://www.nasphv.org). When an interstate health certificate or certificate of veterinary inspection is required, it should contain the same rabies vaccination information as Form 51.

c. Areas with Dog-to-Dog Rabies Transmission. Canine rabies virus variants have been eliminated in the United States (*3*). Rabid dogs have been introduced into the continental United States from areas with dog-to-dog rabies transmission (*18,19*). This practice poses a risk for introducing canine-transmitted rabies to areas in the United States where it does not exist. The importation of dogs for the purposes of adoption or sale from areas with dog-to-dog rabies transmission should be prohibited.

4. Adjunct Procedures. Methods or procedures that enhance rabies control include the following:

a. Identification. Dogs, cats, and ferrets should be identified (e.g., by metal or plastic tags or microchips) to allow for verification of rabies vaccination status.

b. Licensure. Registration or licensure of all dogs, cats, and ferrets can be used to aid in rabies control. A fee is frequently charged for such licensure, and revenues collected are used to maintain rabies- or animal-control programs. Evidence of current vaccination is an essential prerequisite to licensure.

c. Canvassing. House-to-house canvassing by animal-control officials facilitates enforcement of vaccination and licensure requirements.

d. Citations. Citations are legal summonses issued to owners for violations, including failure to vaccinate or license their animals. The authority for officers to

issue citations should be an integral part of each animal-control program.

e. **Animal Control.** All communities should incorporate stray animal control, leash laws, animal bite prevention, and training of personnel in their programs.

f. **Public Education.** All communities should incorporate educational programs that cover responsible pet ownership, bite prevention, and appropriate veterinary care.

5. **Postexposure Management.** This section refers to any animal exposed (see Part I.A.1.) to a confirmed or suspected rabid animal. Wild, mammalian carnivores or bats that are not available for testing should be regarded as rabid animals.

a. **Dogs, Cats, and Ferrets.** Unvaccinated dogs, cats, and ferrets exposed to a rabid animal should be euthanized immediately. If the owner is unwilling to have this done, the animal should be placed in strict isolation for 6 months. Rabies vaccine should be administered to the animal upon entry into isolation or 1 month before release to comply with preexposure vaccination recommendations (see Part I.B.1.a.). No USDA biologics are licensed for postexposure prophylaxis of previously unvaccinated domestic animals, and evidence exists that the use of vaccine alone will not reliably prevent the disease in these animals (*20*). Animals with expired vaccinations need to be evaluated on a case-by-case basis. Dogs, cats, and ferrets that are currently vaccinated should be revaccinated immediately, kept under the owner's control, and observed for 45 days. Any illness in an isolated or confined animal should be reported immediately to the local health department. If signs suggestive of rabies develop, the animal should be euthanized and the head shipped for testing as described in Part I.A.8.

b. **Livestock.** All species of livestock are susceptible to rabies; cattle and horses are the most frequently infected (*3*). Livestock exposed to a rabid animal and currently vaccinated with a vaccine approved by USDA for that species should be revaccinated immediately and observed for 45 days. Unvaccinated livestock should be euthanized immediately. If the animal is not euthanized, it should be kept under close observation for 6 months. Any illness in an animal under observation should be reported immediately to the local health department. If signs suggestive of rabies develop, the animal should be euthanized and the head shipped for testing as described in Part I.A.8.

Handling and consumption of tissues from exposed animals might carry a risk for rabies transmission. The risk depends in part on the site(s) of exposure, amount of virus present, severity of wounds, and whether sufficient contaminated tissue is later excised. If an exposed animal is to be slaughtered for consumption, it should be done immediately after exposure. Barrier precautions should be used by persons handling the animal, and all tissues should be cooked thoroughly. Historically, federal guidelines for meat inspectors have required that any animal known to have been exposed to rabies within 8 months be rejected for slaughter. USDA Food and Inspection Service (FSIS) meat inspectors should be notified if such exposures occur in food animals before slaughter.

In infected animals, rabies virus might be widely distributed in tissues (*21*). Tissues and products from a rabid animal should not be used for human or animal consumption (*22*). However, pasteurization temperatures will inactivate rabies virus; therefore, drinking pasteurized milk or eating thoroughly cooked animal products does not constitute a rabies exposure.

Multiple rabid animals in a herd or herbivore-to-herbivore transmission is uncommon; therefore, restricting the rest of the herd if a single animal has been exposed to or infected by rabies is usually not necessary.

c. **Other Animals.** Other mammals exposed to a rabid animal should be euthanized immediately. Animals maintained in USDA-licensed research facilities or accredited zoological parks should be evaluated on a case-by-case basis.

6. **Management of Animals that Bite Humans.**

a. **Dogs, Cats, and Ferrets.** Rabies virus might be excreted in the saliva of infected dogs, cats, and ferrets during illness and/or for only a few days before illness or death (*23–25*). A healthy dog, cat, or ferret that bites a person should be confined and observed daily for 10 days (*26*); administration of rabies vaccine to the animal is not recommended during the observation period to avoid confusing signs of rabies with possible side effects of vaccination. Animals in confinement should be evaluated by a veterinarian at the first sign of illness. Any illness in the animal should be reported immediately to the local health department. If signs suggestive of rabies develop, the animal should be euthanized and the head shipped

for testing as described in Part I.A.8. Any stray or unwanted dog, cat, or ferret that bites a person may be euthanized immediately and the head submitted for rabies examination.

b. Other Biting Animals. Other biting animals that might have exposed a person to rabies should be reported immediately to the local health department. Management of animals other than dogs, cats, and ferrets depends on the species, the circumstances of the bite, the epidemiology of rabies in the area, the biting animal's history, current health status, and the animal's potential for exposure to rabies. Previous vaccination of these animals might not preclude the necessity for euthanasia and testing.

7. Outbreak Prevention and Control. The emergence of new rabies virus variants and the introduction of nonindigenous viruses pose a substantial risk to humans, domestic animals, and wildlife (*27–34*). In such situations, the public health response should be rapid and comprehensive and should include the following measures:

a. Characterize the virus at a national or regional reference laboratory.
b. Identify and control the source of the introduction.
c. Enhance laboratory-based surveillance in wild and domestic animals.
d. Increase animal rabies vaccination rates.
e. Restrict the movement of animals at risk.
f. Evaluate the need for vector population reduction.
g. Coordinate a multi-agency response.
h. Provide public and professional outreach and education.

8. Disaster Response. Animals might be displaced during and after manmade or natural disasters, and they might require emergency sheltering (http://www.bt.cdc.gov/disasters/hurricanes/katrina/petshelters.asp, http://www.hsus.org/disaster, and http://www.avma.org/disaster/default.asp) (*35*). Animal rabies vaccination and exposure histories often are not available for displaced animals, and disaster response can create situations in which animal caretakers might lack appropriate training and previous vaccination. In such situations, the following rabies-prevention and -control measures should be used to reduce the risk for rabies transmission and the need for human postexposure prophylaxis.

a. Coordinate relief efforts of persons and organizations with the local emergency operations center before deployment.
b. Examine each animal for signs of rabies at a triage site.
c. Isolate animals exhibiting signs of rabies, pending evaluation by a veterinarian.
d. Ensure that all animals have a unique identifier.
e. Administer a rabies vaccination to all dogs, cats, and ferrets unless reliable proof of vaccination exists.
f. Adopt minimum standards for animal caretakers that include personal protective equipment, previous rabies vaccination, and appropriate training in animal handling (see Part I.C.).
g. Maintain documentation of animal disposition and location (e.g., returned to owner, died or euthanized, adopted, relocated to another shelter, address of new location).
h. Provide facilities to confine and observe animals involved in exposures (see Part I.A.1.).
i. Report human exposures to appropriate public health authorities (see Part I.B.6.).

C. Prevention and Control Methods Related to Wildlife. The public should be warned not to handle or feed wild mammals. Wild mammals and hybrids that bite or otherwise expose persons, pets, or livestock should be considered for euthanasia and rabies examination. A person bitten by any wild mammal should immediately report the incident to a physician who can evaluate the need for postexposure prophylaxis (*2*).

Translocation by humans of infected wildlife has contributed to the spread of rabies (*28–32*); therefore, the human translocation of known terrestrial rabies reservoir species should be prohibited. Whereas state-regulated wildlife rehabilitators and nuisance wildlife-control operators might play a role in a comprehensive rabies-control program, minimum standards for persons who handle wild mammals should include rabies vaccination, appropriate training, and continuing education.

1. Carnivores. The use of licensed oral vaccines for the mass vaccination of free-ranging wildlife should be considered in selected situations, with the approval of the state agency responsible for animal rabies control (*5,36*). The distribution of oral rabies vaccine should be based on scientific assessments of the target species and followed by timely and appropriate analysis of surveillance data; such results should be provided to all stakeholders. In addition, parenteral vaccination (trap-vaccinate-release) of wildlife rabies reservoirs can be integrated into coordinated oral rabies vaccination programs to enhance their effectiveness. Long-term, widespread programs for trapping or poisoning wildlife are not effective in reducing wildlife rabies reservoirs on a statewide basis. However, limited population control in high-contact areas (e.g., picnic grounds, camps, and suburban areas) might be indicated for the removal of selected high-risk species of wildlife (*5*). State agriculture, pub-

lic health, and wildlife agencies should be consulted for planning, coordination, and evaluation of vaccination or population-reduction programs.

2. **Bats.** Since the 1950s, indigenous rabid bats have been reported from every state except Hawaii and have caused rabies in at least 40 humans in the United States (*37–42*). Bats should be excluded from houses, public buildings, and adjacent structures to prevent direct association with humans (*43,44*). Such structures should then be made bat-proof by sealing entrances used by bats. Controlling rabies in bats through programs designed to reduce bat populations is neither feasible nor desirable.

Part II: Recommendations for Parenteral Rabies Vaccination Procedures

A. Vaccine Administration. All animal rabies vaccines should be restricted to use by or under the direct supervision of a veterinarian (*45*), except as recommended in Part I.B.1. All vaccines must be administered in accordance with the specifications of the product label or package insert.

B. Vaccine Selections. Part III lists all vaccines licensed by USDA and marketed in the United States at the time of publication. New vaccine approvals or changes in label specifications made subsequent to publication should be added to this list. Any of the listed vaccines can be used for revaccination, even if the product is not the same as previously administered. Vaccines used in state and local rabies-control programs should have at least a 3-year duration of immunity. This constitutes the most effective method of increasing the proportion of immunized dogs and cats in any population (*46*). No laboratory or epidemiologic data exist to support the annual or biennial administration of 3- or 4-year vaccines following the initial series.

C. Adverse Events. Currently, no epidemiologic association exists between any licensed vaccine and adverse events, including vaccine failure (*47,48*). Adverse events should be reported to the vaccine manufacturer and to USDA, Animal and Plant Health Inspection Service, Center for Veterinary Biologics (Internet: http://www.aphis.usda.gov/vs/cvb/html/adverseeventreport.html; telephone: 800-752-6255; or e-mail: CVB@usda.gov).

D. Wildlife and Hybrid Animal Vaccination. The safety and efficacy of parenteral rabies vaccination of wildlife and hybrids have not been established, and no rabies vaccines are licensed for these animals. Parenteral vaccination (trap-vaccinate-release) of wildlife rabies reservoirs can be integrated into coordinated oral rabies vaccination programs, as described in Part I.C.1., to enhance their effectiveness. Zoos or research institutions may establish vaccination programs to protect valuable animals, but these should not replace appropriate public health activities to protect humans (*9*).

E. Accidental Human Exposure to Vaccine. Human exposure to parenteral animal rabies vaccines listed in Part III does not constitute a risk for rabies virus infection. Human exposure to vaccinia-vectored oral rabies vaccines should be reported to state health officials (*49*).

F. Rabies Certificate. All agencies and veterinarians should use NASPHV Form 51 (revised 2007), Rabies Vaccination Certificate, or an equivalent, which can be obtained from vaccine manufacturers, NASPHV (http://www.nasphv.org), or CDC (http://www.cdc.gov/ncidod/dvrd/rabies/professional/professi.htm). The form must be completed in full and signed by the administering or supervising veterinarian. Computer-generated forms containing the same information are acceptable.

Part III: Rabies vaccines licensed and marketed in the United States, 2007

Product name	Produced by	Marketed by	For use in	Dosage (mL)	Age at primary vaccination*	Booster recommended	Route of inoculation
A) MONOVALENT (Inactivated)							
DEFENSOR 1	Pfizer, Inc. License No. 189	Pfizer, Inc.	Dogs	1	3 mos†	Annually	IM§ or SC¶
			Cats	1	3 mos	Annually	SC
DEFENSOR 3	Pfizer, Inc. License No. 189	Pfizer, Inc.	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year later and triennially	SC
			Sheep	2	3 mos	Annually	IM
			Cattle	3	3 mos	Annually	IM
RABDOMUN	Pfizer, Inc. License No. 189	Schering-Plough	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year later and triennially	SC
			Sheep	2	3 mos	Annually	IM
			Cattle	3	3 mos	Annually	IM
RABDOMUN 1	Pfizer, Inc. License No. 189	Schering-Plough	Dogs	1	3 mos	Annually	IM or
			Cats	1	3 mos	Annually	SC
RABVAC 1	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs	1	3 mos	Annually	IM or
			Cats	1	3 mos	Annually	IM
RABVAC 3	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year later and triennially	IM or
			Horses	2	3 mos	Annually	IM
RABVAC 3 TF	Fort Dodge Animal Health License No. 112	Fort Dodge Animal Health	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year later and triennially	IM or
			Horses	2	3 mos	Annually	IM
PRORAB-1	Intervet, Inc. License No. 286	Intervet, Inc.	Dogs	1	3 mos	Annually	IM or
			Cats	1	3 mos	Annually	IM or
			Sheep	2	3 mos	Annually	IM
CONTINUUM RABIES	Intervet, Inc. License No. 286	Intervet, Inc.	Dogs	1	3 mos	1 year later and triennially	SC
			Cats	1	3 mos	1 year later and quadrennially	SC
IMRAB 3	Merial, Inc. License No. 298	Merial, Inc.	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year later and triennially	IM or
			Sheep	2	3 mos	1 year later and triennially	IM or
			Cattle	2	3 mos	Annually	IM or
			Horses	2	3 mos	Annually	IM or
			Ferrets	1	3 mos	Annually	SC
IMRAB 3 TF	Merial, Inc. License No. 298	Merial, Inc.	Dogs	1	3 mos	1 year later and triennially	IM or
			Cats	1	3 mos	1 year	IM or
			Ferrets	1	3 mos	Annually	SC
IMRAB Large Animal	Merial, Inc. License No. 298	Merial, Inc.	Cattle	2	3 mos	Annually	IM or
			Horses	2	3 mos	Annually	IM or
			Sheep	2	3 mos	1 year later and triennially	SC
IMRAB 1	Merial, Inc. License No. 298	Merial, Inc.	Dogs	1	3 mos	Annually	SC
			Cats	1	3 mos	Annually	SC
IMRAB 1 TF	Merial, Inc. License No. 298	Merial, Inc.	Dogs	1	3 mos	Annually	SC
			Cats	1	3 mos	Annually	SC
B) MONOVALENT (Rabies glycoprotein, live canary pox vector)							
PUREVAX Feline Rabies	Merial, Inc. License No. 298	Merial, Inc.	Cats	1	8 wks	Annually	SC
C) COMBINATION (Inactivated rabies)							
Equine POTOMAVAC + IMRAB	Merial, Inc. License No. 298	Merial, Inc.	Horses	1	3 mos	Annually	IM
CONTINUUM DAP-R	Intervet, Inc. License No. 286	Intervet, Inc.	Dogs	1	3 mos	1 year later and triennially	SC
CONTINUUM Feline HCP-R	Intervet, Inc. License No. 286	Intervet, Inc.	Cats	1	3 mos	1 year later and quadrennially**	SC
D) COMBINATION (Rabies glycoprotein, live canary pox vector)							
PUREVAX Feline 3/Rabies	Merial, Inc. License No. 298	Merial, Inc.	Cats	1	8 wks	Annually	SC
PUREVAX Feline 4/Rabies	Merial, Inc. License No. 298	Merial, Inc.	Cats	1	8 wks	Annually	SC
E) ORAL (Rabies glycoprotein, live vaccinia vector) — RESTRICTED TO USE IN STATE AND FEDERAL RABIES-CONTROL PROGRAMS							
RABORAL V-RG	Merial, Inc. License No. 298	Merial, Inc.	Raccoons Coyotes	N/A††	N/A	As determined by local authorities	Oral

* Minimum age (or older) and revaccinated 1 year later
† One month = 28 days.
§ Intramuscularly.
¶ Subcutaneously.
** Non-rabies fractions have a 3-year duration (see label).
†† Not applicable.

Rabies vaccine manufacturer contact information

Manufacturer	Fort Dodge Animal Health	Intervet, Inc.	Merial, Inc.	Pfizer, Inc.	Schering-Plough Corp.
Phone number	800-533-8536	800-835-0541	888-637-4251	800-366-5288	800-521-5767
Internet address	http://www.wyeth.com/divisions/fort_dodge.asp	http://www.intervetusa.com	http://us.merial.com	http://www.pfizerah.com	http://www.spah.com/usa

Note: ADVERSE EVENTS: Adverse events should be reported to the vaccine manufacturer and to the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Center for Veterinary Biologics (Internet: http://www.aphis.usda.gov/vs/cvb/html/adverseeventreport.html; telephone: 800-752-6255; or e-mail: CVB@usda.gov).

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